ISSN: 0976-3031

Available Online at http://www.recentscientific.com

CODEN: IJRSFP (USA)

International Journal of Recent Scientific Research
Vol. 8, Issue, 8, pp. 19289-19297, August, 2017

International Journal of Recent Scientific Research

DOI: 10.24327/IJRSR

Research Article

BANK CHARACTERISTICS AND LENDING RATES AMONG COMMERCIAL BANKS IN KENYA

Maubi Andrew Mokaya*., Rosemary M. James and Ambrose O. Jagongo

Kenyatta University, Kenya

DOI: http://dx.doi.org/10.24327/ijrsr.2017.0808.0663

ARTICLE INFO

Article History:

Received 15th May, 2017
Received in revised form 25th June, 2017
Accepted 23rd July, 2017
Published online 28th August, 2017

Key Words:

Bank, Credit, Liquidity, Risk, Operating Costs, Lending.

ABSTRACT

This study sought to investigate the effect of bank characteristics on lending rates among commercial banks in Kenya. Specifically the study sought to; establish the effect of bank size, credit risk, and liquidity risk, operating costs, on lending rates among commercial banks in Kenya. The research philosophy for this research was positivism. Explanatory non-experimental research design was employed. The target population was thirty nine (39) commercial banks from whom secondary data was collected by way of census since these are the banks from which complete information could be obtained for meaningful analysis for the study period 2006-2015. Descriptive Statistics including Mean, Standard deviation, inferential statistics (Panel regression analysis and Correlation analysis) were carried out. Data analysis was run on the Stata 13 package and findings presented in figures, tables, graphs and charts while deriving conclusions and recommendations from the findings of the study. The finding revealed that bank size, operating costs, had positive and significant effects on lending rates. However the effect of GDP growth rate and bank size was found to be negative. The finding further showed that the effects of credit risk and liquidity risk on lending rates was positive but insignificant. Based on the findings, the study concluded that bank characteristics play a significant role in determining the lending rates of commercial banks. The study recommends that individuals wishing to take mortgages home equity loans, car loans, and personal loans from commercial banks should consider the size of the banks, its market share and other internal factors to identify the most competitive banks in terms of lending rates.

INTRODUCTION

Background of the Study

According to Uzeru (2012), bank characteristics refer to the internal factors that commercial banks consider while setting up lending rates. Maina (2015) asserts that lending rates are arrived at by considering bank characteristics including credit risk, bank size, operating costs, among others. Credit risk is a fraction of total loan represented by non-performing loans (NPLR). In financial sector credit risk is used to measure the quality of loans where high non-performing loans ratio implies that there is high cost of bad loans. Since all economic agents are risk averse, commercial banks facing credit risk in most cases pass the risk to borrowers by increasing the lending rates. Bank size is the measure of how much in value the bank holds in terms of all its assets. According to Were and Wambua (2014), bank size is usually determined by a log of banks totals assets. From theoretical perspective big banks are expected to charge lower lending rates compared to smaller banks this is because of the ability of these banks to utilize the economies of scale in their operation efficiency. Large banks also have high potential of investing in modern technology to enhance their efficiency. Operating costs are the day to day running expenses and are to be operationalized as operating costs as ratio of net income. Some of the costs commercial banks incur are credit appraisal costs, application and screening costs and the cost involved in monitoring the projects for which the loans was applied for (Beck, 2010). When the costs associated with loan application increase this is likely to impacts on the cost of loans through increase in lending rates. Operating expenses in usually adopted in financial sector as an indicator of operational inefficiency. In a case where, there is high costs incurred by financial intermediaries this will impacts positively on lending rates while negatively impacting of interest rates charged on deposits.

On the other liquidity risk is inability of the commercial banks in this case to meet its current financial obligations. Liquidity risk is often derived by computing the ratio of bank's liquid assets to total assets. Liquidity risk varies from one bank to another and depends on the amount of liquidity owned by the banks. Commercial banks with high liquidity faces lower liquidity risks and vice versa hence they are likely to charge

*Corresponding author: **Maubi Andrew Mokaya**
Kenyatta University, Kenya

lower lending rates than banks with less liquidity. Banks with lower liquidity also charge lower liquidity premiums onloans. Commercial banks facing high liquidity risk are forced to engage in interbank lending to cushion themselves hence cascading the costs to the borrowers as a results they charge higher lending rates (Ahokpossi, 2013).

Return on average assets refers to the net earnings that would be expected out of an investment in assets and is computed as a ratio of net income and average total assets. This is generally considered as a good indicator to evaluate the profitability of the assets of a firm in comparison to other firms in the same industry. A positive relationship with lending rates is hypothesized. Commercial banks that rely mainly on interest charged on their loan facilities as their main source of income tend to charge higher lending rates compared to banks that have incoming earning assets. This is because such banks may be unwilling to forego their income at the expense of lower lending rates. However, some of the banks generate high income by charging lower lending rates and ensuring high repayment of loans (Were & Wambua, 2014).

Georgievska *et al.,* (2010) notes that lending rates in Macedonia have been high as are lending rates in most developed and developing countries. Further, bank characteristics (bank size, market share and non-performing loans) positively affect lending rates in Macedonia. Mbao *et al*., (2014) states that lending rates in Zambia like most of the developing nations and some developed nations alike, are high hence making access to credit difficult. The study finds that characteristics of bank (bank size, operating costs and liquidity risk) negatively affect lending rates in Zambia. This study will aim to find out how Bank size, operating costs, credit and liquidity risk on lending rates among commercial banks in Kenya given conflicting findings.

Statement of the Problem

Lending rates are a key determinant of a country's economic growth (Mutinda, 2014). According to Kamaan and Nyamongo (2014), investments are financed through borrowing and if the lending rates are higher than the hurdle rate (required rate of return), then the investments would not grow since the returns are used up in repayment of loans and little, if any, remains for re-investment hence having a counter-productive effect on the economy. However, Commercial banks in Kenya still charge high lending rates (Were & Wambua, 2014; KNBS, 2015). The trend in the financial market in Kenya indicates a static slow response of the lending rates to changes in the CBR which is a prerequisite to the KBRR (Appendix II). Mbotu (2010) states that the lending rates in Kenya were so high in the year 2010 that members of the Kenya National Assembly discussed financial bill to cap lending rates despite liberalization.

The national assembly of Kenya enacted the banking amendment Act (2015) to cap the commercial bank lending rates at not more than 4% above the CBR. However, this enactment has not offered a solution to the problem of lending rates since the rates still remain high compared to lending rates of most countries in Africa. There are examples of countries in Africa whose lending rates have had a downward trend without applying the law like Zambia, Namibia and Botswana. Given the high lending rates and the slow response of the lending rates to changes in the KBRR, the emerging question therefore is what determines the lending rates.

Scanty documented uniform information exists that analyzes the determinants of lending rates whereas studies reviewed give inconsistent results. For instance; Gambacorta and Mistrulli (2014);Ikhide (2009) and Folawewol and Tennant(2008) found that bank characteristics(Bank Size, Operating costs, liquidity risk and credit risk) and macroeconomic variables are positively related with lending rates. However these studies assume direct relationships and concentrate on interest rate spread. Nampewo (2013); Entrop *et al*., (2012); Bennaceur and Goaie (2008); Aboagye *et al*., (2008) indicate that bank characteristics(Bank Size, Operating costs, Liqudity risk and credit risk) and macroeconomic factors are negatively related with lending rates again on a linear perspective and concentrate on interest rate spread. The study investigated the effect of bank characteristics and macroeconomic variables on lending rates among commercial banks in Kenya.

LITERATURE REVIEW

Theoretical Background

In this section the study reviewed some of the theories that inform the hypothesized relationship between the study variables. The theories discussed include loan able fund theory, liquidity preference theory, theory of price, classical theory of lending and fisher's theory**.** Commercial banks have internal characteristics that define how decisions are made that affect funds available as loans. The commercial banking industry also has common characteristics that are prescribed by the regulator and the nature of business. These characteristics determine the funds available as loans. The economic conditions and performance (economic factors) affect the funds at the banks' disposal to provide as loans. For example if inflation were high, savers would require more money to spend around and as such reducing the loanable funds (Were & Wambua, 2014).

Liquidity preference theory was proposed by John Keynes and it indicates that most of investors tend to prefer short term securities over long term securities (Keynes, 1973).Taylor and Taylor (2009) liquidity preference theory can be defined as the rate interest advanced by general theory of employment and money. Panico and Carlo (2008), with increase in consumer credit already known by 1920s, the demand for investment may not be the only use of the funds available for loans. Keynes neglected the facts that lending rates also allocates available funds for consumption purposes besides investments. Availability of funds at low lending rates influence the demand to consume and a small monetary efforts may go a long way in altering the movements of the lending rates as desired since speculation will quickly come in to balance the market in the expected direction which arbitrage the following lending rates fluctuations on the foundation of the rate expected (Christiano *et al*., 2005).

This theory can be attributed to the works of George Stigler who was an American economist. The arguments forwarded by the classical economic theory were that equilibrium market price was a subject of demand and supply specifically under the perfect market model assumptions. Theory of price also asserts that pricing of the loans further depends on the costs involved which are often calculated as ratio of interest. The cumulative

amount of interest paid is subject to other factors such as credit risk of the borrower, amount borrowed and the period it will take to repay the loan (Schindler, 2011).

The classical theory of lending rates was developed in the nineteenth and twentieth centuries by economist led by Irving Fisher (1930). This theory forms part of the oldest theoretical arguments on the determinants risk free rate. The theory argues that lending rates are subject to two aspects. One is the supply of savings determined from the households and the demand for capita and investment which is determined mainly from the business sector. Keynes (2006) in the classical theories considers the repayment of lending rates as the benefits the savers gets for postponing their consumption for greater consumption. According to the theory higher lending rates influence the attractiveness of saving at the expense of current consumption hence individual would prefer saving with the prospects of earning which increases the supply of funds.

Empirical Literature Review

According to Krnic' (2014) on studying determinants of lending rates granted to companies in Croatia, bank characteristics (Deposit lending rates, non-performing loans) have positive relationship with lending rates. Bank size, ROA, ROE and Capital adequacy are found to have no significant effect on lending rates. The study assumes direct relationships and is carried out in the developed world. Current sought to establish the moderating role of political risk on lending rates and will be carried out in Kenya, a developing nation. Whereas the study did not consider effect of operating costs on lending rates, current study sought to establish the effect of this on lending rates.

Ngigi (2014) studies determinants of lending rates in deposit taking MFIs in Kenya and finds that operational costs have a negative relationship with lending rates whereas credit risk had a positive relationship with lending rates. Study assumes direct relationship. Current study sought to determine the moderating role of political risk on lending rates on commercial banks in Kenya. Whereas previous study did not account for the role of industry characteristics, current study controlled for the KBRR and competition with a view to assess their role in the determination of lending rates among commercial banks in Kenya.

Rosenberg *et al.,* (2013) upon studying microcredit lending rates and other determinants for years 2004-2011 in the United States find that operating costs, non-performing loans ratio and size of the micro-finance bank are positively related with lending rates. The study does not consider effect of liquidity levels of the micro-finance bank which the current study will consider. The study also fails to account for effect of macroeconomic variables and assumes direct relationships. Current study seeks to establish the moderating role of political risk on lending rates and assess the influence of macroeconomic variables (GDP and Inflation) on lending rates. The study also covers a more recent period (2006-2015) and is carried out in a developing country, Kenya with concentration on Commercial banks.

Castro and Santos (2010) conducted a study on bank lending rates and loan determinants in Portugal for the period 2003-2008 and find that bank size; costs of operations and NPLs have a negative relationship with lending rates. The study assumes direct relationships and does not account for industry and macro-economic conditions. Current study will consider the effect of bank characteristic, liquidity levels and use a more recent and extended period under study. In addition, the current study sought to find out the moderating role of political risk on lending rates and incorporate macro (GDP and Inflation) and industry level characteristics (KBRR and Competition) which will be assessed as control variables.

RESEARCH METHODOLOGY

The philosophy of the research that was employed by the study was positivism. In this study, explanatory non-experimental design was adopted that sought to determine the effect of the independent variables on lending rates, the dependent variable and no manipulation of the independent variables is anticipated. This design was appropriate since the purpose is to describe and explain characteristics of certain groups (Were & Wambua, 2014).The target population for this study comprised of forty three (43) commercial banks. According to the CBK (2015), there were 43 commercial banks as at 31st December 2015 in the banking sector in Kenya. However, only thirty nine (39) Commercial banks were studied due to the fact that four (4) of the banks are under statutory management have restricted the availability of credible data. The study used document review guide in collecting quantitative data from the thirty nine (39) commercial banks for analysis to support or refute stated hypotheses and confirm evidence to be obtained from quantitative data analysis.

The general Empirical model is specified as follows:

$$CBLR_{it} = \alpha_i + X_{it}\beta, + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

Where $CBLR_{it}$ is the Commercial Banks' Lending Rate for bank *i* at time period *t*, as given by the published information, X_{it} is a composite of bank characteristics, α_i is the bank specific fixed effects capturing the impact of unobservable effects, ε_{it} is the statistical disturbance term (error term) and β is the statistical estimate. Equation 3.1 above shall be expanded to obtain equation *3.2* which shall be used for estimation.

$$CBLR_{it} = \beta_0 + \beta_1 BS_{it} + \beta_2 CR_{it} + \beta_3 LR_{it} + \beta_4 OC_{it}\varepsilon_{it} \ldots\ldots\ldots\ldots\ldots Equation \quad (2)$$

Where:

β_{it} Is a vector of coefficients to be estimated?
BS- Bank size,
CR- Credit Risk
LR - Liquidity risk,
OC -Operating costs,

The study sought to test the following null hypotheses:

H_{01}: *Bank size does not have a significant effect on lending rates among commercial banks in Kenya.*
H_{02}: *Credit risk does not have a significant effect on lending rates among commercial banks in Kenya.*
H_{03}: *Liquidity risk does not have a significant effect on lending rates among commercial banks in Kenya.*
H_{04}: *Operating costs do not have a significant effect on lending rates among commercial banks in Kenya.*

Diagnostic Tests

It was necessary that before any attempt is made for estimation, testing to ensure non-violation of the Classical Linear regression model (CLRM) assumptions. If this was not assured, then the parameter estimates stood the risk of being biased, inefficient and inconsistent (Gujarati, 2003). It is therefore necessary to carry out the following tests to ensure proper estimation: Normality, Heteroscedasticity, Multicollinearity, and Autocorrelation and panel unit root test.

ANALYSIS, FINDINGS AND DISCUSSIONS

Descriptive Results

Descriptive analysis for the study variables was conducted to find out the mean, standard deviation, minimum and maximum values.

Table 1 Descriptive Statistics for study variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Lending Rates	333	0.217087	0.049305	0.06	0.33
Bank Size	403	4.291089	0.586569	3.0849	5.67
Credit Risk	346	0.113348	0.159307	0	0.61
Liquidity Risk	384	0.166194	0.083109	0.05117	0.81908
Operating Costs	390	6.988778	18.77441	-2.81643 1	61.8487

The finding showed that lending rates had a mean of 21.7 percent between 2007 and 2015. The minimum and maximum values for lending rates were 6 percent and 33 percent. This was an indication that the lending rates in Kenya have been very high leading to deprived financial access by many sectors of the economy. According to Njiru, (2014), Kenya has a biggest problem in terms of ever increasing lending rates which has constantly kept the cost of borrowing very high. Higher cost of borrowing has a detrimental effect on effects on investments since it discourages investor from borrowing. The availability of the affordable loans in the market ensures increase in investment and consumption which further lead to increase in the standard of living and generally economic development.

The mean for bank size measured by log of total assets was 4.29 while the maximum and minimum values were 5.67 and 3.08. The finding implied that commercial banks in Kenya have been growing steadily as shown by their total assets. The steady growth could be attributed to high interest rates which lead to high profits from loan facilities. Aldrich (1979) suggested that size of the organisation matter a lot because large organisation enjoys economies of scale and has enough resources to ensure brand visibility, and enhance their research and development capacity.

Credit risk and liquidity risk had a mean of 0.1133 and 0.166 respectively. This finding indicated that most commercial banks in Kenya have management to keep both their credit risk and liquidity risk ratios low which implied that NPLs have been kept low and also commercial have managed their liquidity assets very low. Maaka, (2013) also contends that organisations must monitor their liquidity and integrate it in their risk management strategy. Market risk and credit risk must also be considered to ensure stability in the financial position. Li and Zou (2014) pointed out the credit risk is a major risk suffered by commercial since most commercial banks generate revenue from loans. The average operating costs for commercial banks in Kenya between 2007 and 2015 was 6.988 while the minimum and maximum values were -2.816 and 161.84 respectively. Majority of commercial banks in Kenya are small measured total assets and this could be reason why their operation expense ratio was significantly higher.

Trend Analysis

The study employed trend analysis to monitor changes in parameters over study period. The study analysed trend for bank characteristics to the significant changes that occurred within the study period. The annual means were computed for all the variables and trend analysis.

Trend Analysis of Lending Rates

The trend analysis for lending rates revealed that lending rates were volatile during the period of this study. The analysis indicates that lending rates were highest in 2006 and lowest in 2008. The results further showed that lending rates have been increasing steadily from 2006 to 2015. The banks rates on lending and deposit dropped slowly but surely reflecting better liquidity conditions in line with the monetary policy. Average lending rates decreased from 26.0 percent in 2006 to below 21 percent percentage in 2015.

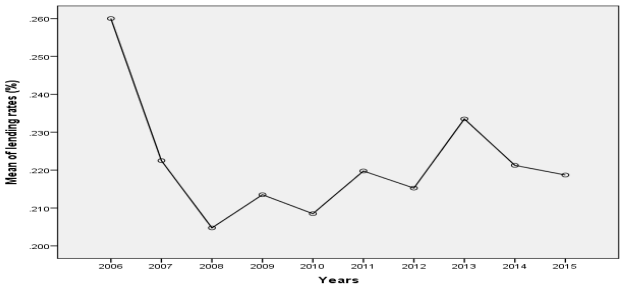

Figure 1 Trend Analysis of Lending Rates

Trend Analysis of Bank Size

The study computed bank size by computing Log of Total Bank Assets (Log) of the commercial banks. The trend analysis results showed that bank size has been increasing from 2006 to 2015. The increase in the bank size could be attributed to increase in the number of deposits accounts as result of increased customers therefore increasing commercial banks profitability hence investments into assets. Bank size is the measure of how much in value the bank holds in terms of all its assets. According to Were and Wambua (2014), bank size is usually determined by a log of banks totals assets.

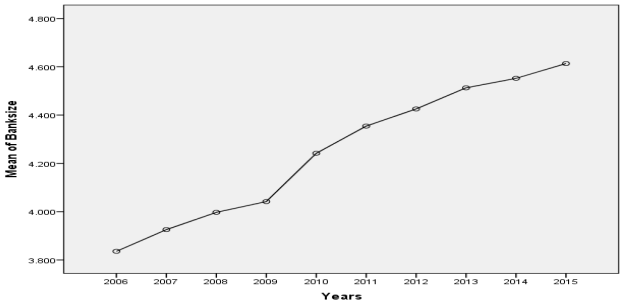

Figure 2 Trend Analysis of Bank Size

From theoretical perspective big banks are expected to charge lower lending rates compared to smaller banks this is because

of the ability of these banks to utilize the economies of scale in their operation efficiency. Large banks also have high potential of investing in modern technology to enhance their efficiency.

Trend Analysis of Credit Risk

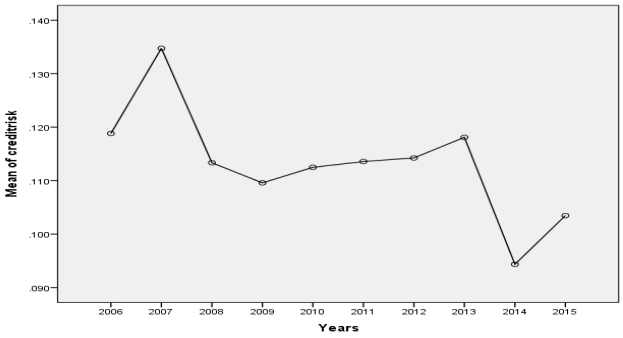

Figure 3 Trend Analysis of Credit Risk

Credit risk was computed by dividing value of Non-performing Loans by Total Loans (Kshs). The results indicate that on average credit risk of commercial banks has been decreasing. This is an indication of the awareness by commercial banks in managing loans through strict policy and credit appraisal mechanisms which results to reduction in non-performing loans. Credit risk however was lowest in 2014 which was below 0.1.

Maina (2015) asserts that lending rates are arrived at by considering bank characteristics including credit risk, bank size, operating costs, among others. Credit risk is a fraction of total loan represented by non-performing loans (NPLR). In financial sector credit risk is used to measure the quality of loans where high non-performing loans ratio implies that there is high cost of bad loans. Since all economic agents are risk averse, commercial banks facing credit risk in most cases pass the risk to borrowers by increasing the lending rates.

Trend Analysis of Liquidity Risk

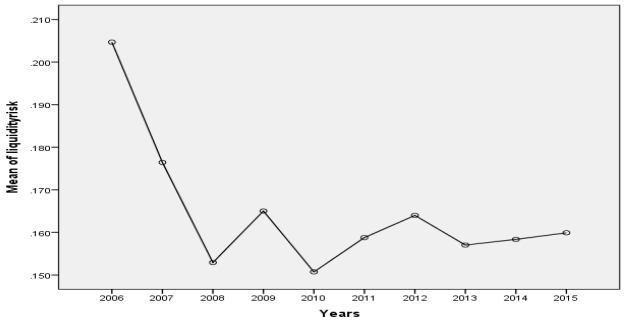

Figure 4 Trend Analysis of Liquidity Risk

The study also sought to find the trend in the average liquidity risk for commercial banks in Kenya. The result showed that liquidity risk has significantly reduced from what it was in the year 2006. The findings further showed that liquidity risk was low in 2008 and 2010 but has remained stable from 2011 to 2015. This could be attributed to increase in the totals of majority of Kenya banks. According to Ahokpossi(2013) liquidity risk is inability of the commercial banks in this case to meet its current financial obligations. Liquidity risk is often derived by computing the ratio of bank's liquid assets to total assets. Liquidity risk varies from one bank to another and depends on the amount of liquidity owned by the banks. Commercial banks with high liquidity faces lower liquidity risks and vice versa hence they are likely to charge lower lending rates than banks with less liquidity. Banks with lower liquidity also charge lower liquidity premiums onloans. Commercial banks facing high liquidity risk are forced to engage in interbank lending to cushion themselves hence cascading the costs to the borrowers as a results they charge higher lending rates (Ahokpossi, 2013).

Trend Analysis of Operating Cost

The study measured operating cost using operating expenses ratio which was computed by dividing profit before tax by operating expenses. The findings indicated that commercial banks in Kenya saw increase in average operating costs from 2006 to 2011. The increase in the operating costs could have been as a result of banks expansion through increased in the number of branches. However, the trend analysis showed that operating costs tremendously began reducing in 2011 reaching the lowest in 2013. A slight increase in operating costs was experienced in 2014 followed by a reduction in 2015. The findings implied that commercial banks in Kenya decreased their operating costs within the period an indication of more efficient banking system. Some of the costs incurred by the commercial banks include credit appraisal costs, application and screening costs and the cost involved in monitoring the projects for which the loans was applied for (Beck, 2010). When the costs associated with loan application increase this is likely to impacts on the cost of loans through increase in lending rates. Operating expenses in usually adopted in financial sector as an indicator of operational inefficiency. In a case where, there is high costs incurred by financial intermediaries this will impacts positively on lending rates while negatively impacting of interest rates charged on deposits.

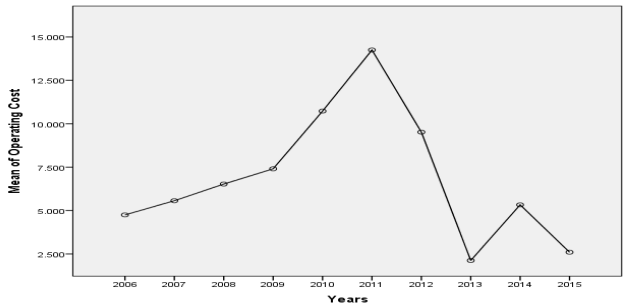

Figure 5 Trend Analysis of Operating Cost

Diagnostic Tests Results

To ensure adhere to the assumption the study conducted the following diagnostic tests; normality/ linearity test, test for heteroskedasticity, test for serial autocorrelation, stationarity test and multicollinearity test for all the study variables. It has been observed that few articles report to have tested the assumptions of the test they used in deriving their conclusions (Osborne, Christensen & Gunter 2001).

Normality Test

The normality test was conducted using the Jarque-Bera (JB) and normality graph. The graphical methods results showed that residual were normally distributed as shown in figure 4.10.

However, the study used a more efficient and conclusive technique known Jarque-Bera (JB) to further ascertains the normality of the residuals. The study failed to reject the null hypothesis since the probability value for Jargue-Bera was greater than 5% and it was therefore concluded that the residual takes normal distribution curve. This implied that data was adequate and met the assumption of linearity.

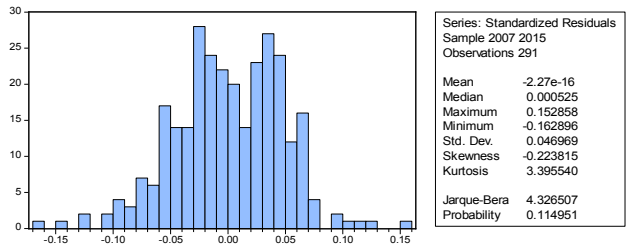

Figure 6 Normality Test

Heteroskedasticity

Regression analysis assumption requires that the residuals should have a constant variance (i.e. they should be Homoskedastic). The Modified Wald test was used to test for Heteroskedasticity where the null hypothesis of the test is that error terms have a constant variance (i.e. should be Homoskedastic). The null hypothesis was not rejected given that the reported p-value 0.000 in table 4.2 was less than the critical value and thus concluded that the observations have constant variance or do not have the problem of Heteroskedasticity.

Table 2 Heteroskedasticity Test Results

Modified Wald test for groupwise heteroskedasticity
chi2 (42) = 2.1e+32
Prob>chi2 = 0.0000

Multicollinearity

In multiple regression, the variance inflation factor (VIF) is used as an indicator of multicollinearity. This study adopted a rule of thumb of VIF value of 10 as the threshold which according to Garson (2012) is the best. These results indicate that the VIF values of the independent variables were within the threshold of 10. This indicated that that there was no threat of multicollinearity problem and therefore, the study used linear regression model. The tolerance of less than 0.1 also indicates the problem of multicollinearity therefore the tolerance values for the study variables further confirmed that there was no threat of multicollinearity problem.

Table 3 Multicollinearity Test Results

	Collinearity Statistics	
(Constant)	Tolerance	VIF
Bank Size	0.291	3.333
Credit Risk	0.946	1.057
Liquidity Risk	0.845	1.183
Operating Cost	0.433	2.312
Dependent Variable: lending rates (%)		

Autocorrelation

The study further carried out the test for serial autocorrelation to establish whether the residuals were correlated across time. The assumptions of the regression demands that the residual should not be correlated across time. The study employed Wooldridge test for autocorrelation to test this assumption. The study sought to test the null hypothesis that no first order serial correlation existed. From the finding presented in table 4, the study concluded that there was no serial correlation of first order since the p-value (p-value=0.2937) was greater than 0.05 leading to the study to reject failed to reject the null hypothesis. The results indicated that the data adhere to the assumption of residual not being correlated across time hence adequate for panel regression analysis.

Table 4 Serial Correlation Tests Results

Serial Correlation Tests
Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
F(1,38) = 1.134
Prob > F = 0.2937

Panel Unit Root Test

The study employed ADF test to establish whether the variables were stationary or non-stationary. Non-stationary variables also lead to spurious results because of the presence of unit root. The result presented in table 5 indicated that the probability value for all the variables was greater than 5% implying that there was a unit root. Therefore, the study failed to reject the null hypothesis at level for all the study variables. This called for first differencing for all the study variables to make all the non-stationary variables stationary and the results are presented in table 6.

Table 5 Panel Unit Root Test Results

Variables	ADF-Statistics	Prob
Lending Rates	48.6148	0.9978
Bank Size	6.99369	0.9835
Credit Risk	24.5179	0.9735
Liquidity Risk	86.6128	0.3426
Operating Cost	105.807	0.0541

Table 6 displays the panel unit root tests after first differencing. It is clear from the results in that all the variables become stationary (unit root disappears) on first differencing since there p value was less than 0.05 meaning that the null hypothesis that there is a unit root was rejected.

Table 6 Panel Unit Root Test Results at First Difference

Variables	ADF-Statistics	Prob
lending rates	410.901	0.000
Bank size	168.994	0.000
Credit risk	137.554	0.000
Liquidity risk	299.041	0.000
Operating Cost	413.948	0.000

Hausman Test for Model Specification

Hausman specification test was used by the study to select the best regression model between a random effect and a fixed effect regression model. The null hypothesis for Hausman test states that the difference between the coefficients is not consistent meaning that a random effect model is the best while the alternative hypothesis states that the differences are consistent implying that a fixed effect model is the best. Results in the table 7 indicated a prob>chi^{2}value of 0.4293 which is greater than critical P value at 5% level of significance which implies that the null hypothesis that a random effect model is the best was not rejected. The study hence used a random effect regression model.

Table 7 Hausman Test for Model Specification Results

	Fixed	Random	Difference	S.E.
Bank Size	-0.00467	-0.00443	-0.00024	0.000979
CreditRisk	0.002102	-0.00061	0.00271	0.001051
Liquidity Risk	0.001388	0.000114	0.001274	0.000753
Operating Cost	0.010751	0.011165	-0.00041	0.000781
chi2(9) =				5.95
Prob>chi2 =				0.4293

The study further employed Breusch and Pagan Lagrange multiplier test to choose between the RE model and the pooled regression model. The null hypothesis was assumed to be that the variance across banks is equal to zero; that is, there are no panel effects. The result showed that the p-value was less than 0.05 meaning that the study rejected the null hypothesis thus conclusion that there are panel effects which led to RE model.

Table 8 Breusch and Pagan Lagrange Multiplier Test

Breusch and Pagan Lagrangian multiplier test for random effects
chibar2(01) = 32.31
Prob > chibar2 = 0.0000

Correlation Matrix

The study further used correlation analysis to test the association between independent variables and dependent variable. The results indicated that bank size, credit risk, liquidity risk, operating costs, had a significant association with lending rates as shown in Table 9

Table 9 Correlation Matrix

	Lending Rates	Bank size	Credit Risk	Liquidity Risk	Operating Cost
Lending Rates	1				
Bank Size	-0.472	1			
Credit Risk	0.3423	-0.4321	1		
Liquidity Risk	0.3302	-0.426	0.8724	1	
Operating Cost	0.6839	-0.4189	0.4656	0.4549	1

Regression Results for Bank Characteristics on Lending Rates in Commercial Banks

The study sought to establish the relationship between bank characteristics and lending rates among commercial banks in Kenya. Among the bank characteristics considered in this study were bank size, credit risk, liquidity risk and operating costs. The study used multiple regression analysis to ascertain the relationship between bank characteristics and commercial banks' lending rates. Table 10 contains the findings.

Table 10 Regression Results for Bank Characteristics and Lending Rates

Lending Rates	Coef.	Std. Err.	z	P>|z|
BankSize	-0.0068117	0.001903	-3.58	0.000
CreditRisk	0.000027	0.0020196	0.01	0.989
LiquidityRisk	0.0029356	0.0019067	1.54	0.124
OperatingCost	0.0125219	0.0015238	8.22	0.000
_cons	0.1929258	0.0118807	16.24	0.000
sigma_u	0.022597			
sigma_e	0.028765			
R-sq: within = 0.4333				
Wald chi2(4) = 246.53				
Prob > chi2 = 0.0000				

The result obtained from random effect model indicated that jointly Bank size, credit risk, liquidity risk and operating costs accounted for 43.3% of the variation in lending rates among commercial banks in Kenya. This model was also statistically significant as shown by Wald chi-square value = 246.53 and p value of 0.000.

From the finding bank size was found to be negatively related to lending rate among commercial banks in Kenya. The results implied that an increase in the banks size would lead to a corresponding reduction in lending rates. Bank size had a regression coefficient of -0.0068 which implied that a unit increase in bank size would results a reduction of 0.0068 units in lending rates. This relationship was further found to be statistically significant since the p-value for Bank size was 0.000 which was lower that the adopted significance level of 0.05. Therefore, the study rejected the null hypothesis that bank size does not have a significant effect on lending rates among commercial banks in Kenya which implied that bank size had a significant relationship with lending rates among commercial banks in Kenya. According to Uzeru (2012), bank characteristics refer to the internal factors that commercial banks consider while setting up lending rates. Maina (2015) asserts that lending rates are arrived at by considering bank characteristics including credit risk, bank size, operating costs, among others. These findings however contradicts those of Krnic' (2014) and Georgievska *et al.*,(2010) who found no significant effect of bank size on lending rates and positive relationship between to bank size and lending rates respectively. The findings of this study were consistent with those Castro and Santos (2010) who found that bank size has a negative relationship with lending rates.

The beta coefficient for credit risk was 0.000027 which was statistically insignificant at significance level of 0.05. The findings implied that a unit increase in credit risk could lead to an increase of 0.000027 units in lending rates which further implied that as the banks credit risk increases it leads to an increase in lending rates. The study failed to reject the null hypothesis that credit risk does not have a significant effect on lending rates among commercial banks in Kenya which implied that credit risk had a significant relationship with lending rates among commercial banks in Kenya.

Maina (2015) also studied the determinants of interest rates spreads in Kenya and found that ownership structure, market structure and business risks play significant role in explaining interest rate spread. The findings are also consistent with Rosenberg *et al.,* (2013) who find that operating costs, non-performing loans ratio and size of the micro-finance bank are positively related with lending rates similarly, Krnic' (2014) found that deposit lending rates, non-performing loans have positive relationship with lending rates. The findings of this study however were not consistent with those of Castro and Santos (2010) who found that non-performing loans have a negative relationship with lending rates since high NPLs results to high credit risk which was found to increase lending rates among commercial banks in Kenya.

The study also tested the relationship between liquidity risk and lending rates among commercial banks in Kenya. Liquidity risk was found to have a positive relationship with commercial bank lending rates. The beta coefficient was 0.002935 which was statistically insignificant at significance level of 0.05. The findings also revealed that a unit increase in liquidity risk could lead to an increase of 0.002935 units in lending rates. The

study rejected the null hypothesis that Liquidity risk does not have a significant effect on lending rates among commercial banks in Kenya which implied that Liquidity risk had a significant relationship with lending rates among commercial banks in Kenya. Similarly, Were and Wambua (2014) argued that big banks are expected to charge lower lending rates compared to smaller banks this is because of the ability of these banks to utilize the economies of scale in their operation efficiency. Large banks also have high potential of investing in modern technology to enhance their efficiency.

Maaka, (2013) also contends that organisations must monitor their liquidity and integrate it in their risk management strategy. Market risk and credit risk must also be considered to ensure stability in the financial position. Li and Zou (2014) further identify credit risk as one of the most significant risks that banks face.

The study further sought to establish the relationship between operating costs and lending rates in commercial banks in Kenya. Operating costs was found to have a positive relationship with commercial bank lending rates. The findings also revealed that a unit increase in operating costs could lead to an increase of 0.01252 units in lending rates and this relationship was statistically significant as showed by the p value of 0.000. The finding implied that there was strong positive relationship between operating cost and lending rates among commercial banks in Kenya. The study rejected the null hypothesis that operating costs does not have a significant effect on lending rates among commercial banks in Kenya which implied that operating costs had a significant relationship with lending rates among commercial banks in Kenya.

Beck (2010) also suggested that some of the costs incurred by the commercial banks include credit appraisal costs, application and screening costs and the cost involved in monitoring the projects for which the loans was applied for. When the costs associated with loan application increase this is likely to impacts on the cost of loans through increase in lending rates. Operating expenses in usually adopted in financial sector as an indicator of operational inefficiency. The findings are consistent with those of Rosenberg *et al.,* (2013) who found that operating costs, non-performing loans ratio and size of the micro-finance bank are positively related with lending rates. Finally, Ngigi (2014) focused on determinants of lending rates in deposit taking MFIs in Kenya and finds that operational costs have a negative relationship with lending rates whereas credit risk had a positive relationship with lending rates.

CONCLUSIONS

The result obtained indicated that jointly Bank size, credit risk, liquidity risk and operating costs accounted for 43.3% of the variation in lending rates among commercial banks in Kenya. The study concluded that bank size and operating costs play a significant role in determining the lending rates of commercial banks. As commercial banks increase in size they able to utilize the economies of scale hence reducing marginal operating costs hence they can lower their lending rates and still remain profitable. Small banks are more risky than larger banks therefore they are likely to charge higher lending rates. On the other hand, credit risk and liquidity risk were found to have insignificant relationship with the lending rates. This study concluded that as much as credit risk and liquidity risk have an effect on lending rates, their effects could be easily mitigated by the commercial through increasing liquidity by interbank markets and reducing their non-performing loan portfolio and this explain why their effect was found to be statistically insignificant.

Recommendations

The study recommends that individuals wishing to take mortgages home equity loans, car loans, and personal loans from commercial banks should consider the size of the banks, its market share and other internal factors to identify the most competitive banks in terms of lending rates. The study further recommended that commercial banks that wish to adjust their lending rates in the banking sector in Kenya as should focus on their internal factors such as bank size, liquidity and credit risk and their operation cost.

References

Ahokpossi, C. (2013). Determinants of Bank Interest Margins in Sub-Saharan Africa (IMF Working Paper WP/13/34).*Washington D.C.: International Monetary Fund*.

Beck, T., Cull, R., Fuchs, M., Getenga, J., Gatere, P., Randa, J., Trandafir, M. (2010). *Banking Sector Stability, Efficiency and Outreach in Kenya*, World Bank Policy Research Working Paper 5442, October. The World Bank, Washington, DC.

Castro, G., & Santos, C. (2010). Bank interest rates and loan determinants. *www. bportugal. pt Publications*, 65

Christiano, J., Eichenbaum, M., & Evans, L. (2005). Nominal rigidities and the dynamic effects of a shock to monetary policy. *Journal of political Economy*, 113(1), 1-45.

Eriksson, P., & Kovalainen, A. (2008). Qualitative methods in business research. London, UK: Sage.

Fisher, L., (1930), The Theory of Interest: As determined by Impatience to Spend and Opportunity to invest it; accessed on http://www.unc.edu/-Salerni/Econ006/ Irving Fisher Chapter i.pdf on 12th September 2012.

Georgievska, L., Kabashi, R., Manova-Trajkovska, N., Mitreska, A., & Vaskov, M. (2010). Determinants of Lending Rates and Interest Rate Spreads in Macedonia (No. 2010-03).

Keynes, J. M. (2006). General theory of employment, interest and money. Atlantic Publishers & Dist.

Keynes, J. M., & Hutchison, T. W. (1973), The Collected Writings of John Maynard Keynes, Volumes I-VI and XV-XVI. The Economic History Review, 26(1), 141.

Kothari, C. (2004). Research Methodology: Methods & Techniques, 2nd edition. New Delhi, India.New age International Publishers

Kothari, C.R. (2008). Research Methodology: Methods & techniques. New Delhi: New Age International (P) Ltd.

Kraemer, C., Stice, E., Kazdin, A., Offord, D., & Kupfer, D. (2001). *How Do Risk Factors Work Together?* Mediators, Moderators, and Independent, Overlapping, and Proxy Risk Factors. *American Journal of Psychiatry*, 158, 848-856.

Krnić, B. (2014). Determinants of lending interest rates granted to companies in Croatia. *Journal of Accounting and Management*, 4(2), 1-20.

Li, W., White, J., Zhu, S., & National Bureau of Economic Research. (2010). *Did bankruptcy reform cause mortgage default to rise?*. Cambridge, Mass: National Bureau of Economic Research.

Maaka, Z. A. (2013). The relationship between liquidity risk and financial performance of commercial banks in Kenya (Doctoral dissertation, University of Nairobi).

Maina, M. W. (2015). Determinants of interest rate spread among commercial banks of Kenya (Doctoral dissertation).

Mazziotta M., & Pareto A. (2012). A Non-compensatory Approach for the Measurement of the Quality of Life. In: Maggino F. & Nuvolati G. (eds). Quality of Life in Italy: Research and Reflections. New York: Springer.

Ngigi, M. K. (2014). Determinants of lending interest rates in deposit taking microfinance institutions in Kenya.

Panico, C. (2008). Durlauf, Steven N.; Blume, Lawrence E., eds. "The New Palgrave Dictionary of Economics". Palgrave Macmillan.

Rosenberg, R., Gaul, S., Ford, W., & Tomilova, O. (2013). Microcredit interest rates and their determinants: 2004-2011. In Microfinance 3.0 (pp. 69-104). Springer Berlin Heidelberg

Schindler, R. M. (2011). Pricing strategies: a marketing approach. Sage.

Taylor, L., & Taylor, L. (2009). Reconstructing macroeconomics: Structuralist proposals and critiques of the mainstream. Harvard University Press.

UNDP (2010). Human Development Report 2010. New York: Palgrave Macmillan.

Uzeru, A. (2012). The Determinants of Lending Rates in Ghana. Kwame Nkrumah University of Science and Technology . Unpublished MBA work.

Were, M., & Wambua, J. (2014). What factors drive interest rate spread of commercial banks? Empirical evidence from Kenya. *Review of Development Finance*, 4(2), 73-82.

How to cite this article:

Maubi Andrew Mokaya *et al*.2017, Bank Characteristics And Lending Rates Among Commercial Banks In Kenya. *Int J Recent Sci Res.* 8(8), pp. 19289-19297. DOI: http://dx.doi.org/10.24327/ijrsr.2017.0808.0663

****